

ANNEMARIE S. BALTAY

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EDUCATION

Stanford University , Stanford, CA	9/2006 – 12/2011
Ph.D. Geophysics, November 2011	
Dissertation title: Precise Earthquake Source Parameter Estimation	
Advisor: Gregory Beroza	
M.S. Geophysics, March 2009	
Advisor: Gregory Beroza	
Yale University , New Haven, CT	8/2001 – 5/2005
B.A. Applied Mathematics, Geophysics concentration	

APPOINTMENTS

Research Geophysicist U.S. Geological Survey, Menlo Park, CA	3/2015 – current
Shaking, Damage and Failure Project	
Mendenhall Postdoctoral Fellow U.S. Geological Survey, Menlo Park, CA	1/2013 – 3/2015
Supervisor: Thomas Hanks	
Postdoctoral Scholar Department of Geophysics, Stanford University	4/2012 – 12/2012
Supervisor: Gregory Beroza	
Instructor Department of Geology and Environmental Sciences, Stanford University	1/2012 – 3/2012
Understanding Natural Hazards, Quantifying Risk, and Increasing Resilience in Highly Urbanized Regions	
Course leads: Professors Mary Lou Zoback and George Hilley	
Graduate Student Researcher Department of Geophysics, Stanford University	9/2006 – 12/2011
Supervisor: Gregory Beroza	
Summer Intern Risk Management Solutions, Newark, CA	6/2010 – 8/2010
Supervisor: Marleen Nyst, Europe Earthquake Model Development	
Visiting Student Researcher Department of Earth and Planetary Sciences	6/2009 – 8/2009
University of Tokyo, as part of NSF East Asia and Pacific Summer Institute	
Host advisor: Satoshi Ide	
Teaching Assistant , Department of Geophysics, Stanford University	
Courses: Journey to the Center of the Earth, Professor Jesse Lawrence	1/2009 – 3/2009
Earthquakes and Volcanoes, Professors Gregory Beroza and Paul Segall	4/2009 – 6/2009

GRANTS AND AWARDS

9/2014	USGS STAR Award for Media Response to the South Napa Earthquake
2013 - present	Mendenhall Fellowship, competitive postdoctoral research fellowship, U.S.G.S.

4/2012 – 12/2012	PG&E Lifelines Grant, Postdoctoral Co-Investigator “A Theoretical Framework for the NGA-West Relationships”
2012	Outstanding Student Paper Award, 2011 Fall AGU Meeting
2011	SSA Student Presentation Award, 2011 SSA Meeting, Memphis, TN
2010	SSA Student Presentation Award, 2010 SSA Meeting, Portland, OR
2006 – 2010	Gabillon Stanford Graduate Fellowship, awarded to top incoming graduate students
6/2009 – 9/2009	“Scaled Radiated Energy in Earthquakes Estimated from the Seismic Coda” NSF East Asia and Pacific Summer Institute Fellowship
2009	1 st place Oral Talk, Stanford School of Earth Sciences Research Review
2008	Outstanding Student Paper Award, 2008 Fall AGU Meeting
2005	Honors in the Major, Applied Mathematics, Yale University

PUBLICATIONS IN PEER REVIEWED JOURNALS

- 2015 **Baltay, A. S.** and J. Boatwright (2015), Ground-motion observations of the 2014 South Napa Earthquake, *Seism. Res. Lett.*, 86(2A), doi: 10.1785/0220140232.
- 2015 Brocher, T. M., **A. S. Baltay**, J. L. Hardebeck, F. F. Pollitz, J. R. Murray, A. L. Llenos, D. P. Schwartz, J. L. Blair, D. J. Ponti, J. J. Lienkaemper, V. E. Langenheim, T. E. Dawson, K. W. Hudnut, D. R. Shelly, D. Dreger, J. Boatwright, B. T. Aagaard, D. J. alk, R. M. Allen, W. D. Barnhard, K. L. Jnudsen, B. A. Brooks and K. M. Scharer (2015), The M6.0 24 August 2014 South Napa Earthquake, *Seism. Res. Lett.*, 86(2A), doi: 10.1785/0220150004.
- 2014 **Baltay, A. S.** and T. C. Hanks (2014), Understanding the magnitude dependence of PGA and PGV in NGA-West2 Data, *Bull. Seis. Soc. Am.*, 104, 6, doi: 10.1785/0120130283.
- 2014 Yabe, S., **A. S. Baltay**, G. C. Beroza and S. Ide (2014), Seismic wave attenuation determined from tectonic tremor in multiple subduction zones, *Bull. Seis. Soc. Am.*, 10.1785/0120140023.
- 2014 **Baltay, A. S.**, G. C. Beroza and S. Ide (2014), Radiated energy of great earthquakes from teleseismic empirical Green’s function deconvolution, *Pure Appl. Geophys.*, doi:10.1007/s00024-014-0804-0 <http://link.springer.com/article/10.1007/s00024-014-0804-0>.
- 2013 **Baltay, A. S.** and G. C. Beroza (2013), Ground motion prediction from tremor, *Geophys. Res. Lett.*, doi:10.1029/2013GL058506 <http://onlinelibrary.wiley.com/doi/10.1002/2013GL058506/abstract>
- 2014 Bozorgnia, Y., ... **A. S. Baltay**, and 30 other authors, (2014), NGA-West2 Research Project, Earthquake Spectra, doi: 10.1193/072113EQS209M <http://dx.doi.org/10.1193/072113EQS209M>.
- 2013 **Baltay, A. S.**, T. C. Hanks and G. C. Beroza (2013) Stable Stress Drop Measurements and their Variability: Implications for Ground-Motion Prediction, *Bull. Seism. Soc. Am.*, 103(1), doi: 10.1785/0120120161 <http://www.bssaonline.org/content/103/1/211.full>.
- 2011 Ide, S., **A. Baltay** and G. C. Beroza, (2011) Shallow Dynamic Overshoot and Energetic Deep Rupture of the 2011 Mw 9.0 Tohoku-Oki Earthquake, *Science* 332, 6036, pp 1426 - 1429, doi:10.1126/science.1207020. <http://www.sciencemag.org/content/332/6036/1426.full.html>.

- 2011 **Baltay, A.**, S. Ide, G. Prieto, and G. C. Beroza, (2011) Variability in Earthquake Stress Drop and Apparent Stress, *Geophys. Res. Lett.* 38, L06303, doi:10.1029/2011GL046698 <http://www.agu.org/pubs/crossref/2011/2011GL046698.shtml>.
- 2010 **Baltay, A.**, G. Prieto, and G. C. Beroza, (2010) Radiated seismic energy from coda measurements indicates no scaling in apparent stress with seismic moment, *J. Geophys. Res.* 115(B8), 1-12, doi:10.1029/2009JB006736 <http://www.agu.org/pubs/crossref/2010/2009JB006736.shtml>.
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MANUSCRIPTS

Baltay, A. S. and T. C. Hanks, Variability in stress drop measurements and its relationship to variability in GMPEs (in preparation for SRL)

REPORTS

- A. S. Baltay**, Review of magnitudes and finite fault dimensions for the NGA-East database, 8/2014.
- A. S. Baltay** and T. C. Hanks, Magnitude Dependence of Swiss Strong Motion Data in Comparison to the NGA-West2 Data, report prepared for the PEGASOS Swiss Ground Motion Project, 3/17/2013.
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INVITED SEMINAR PRESENTATIONS AND WORKSHOP PARTICIPATION

- USGS South Napa Earthquake Science Debrief, "Ground motion observations and simulations from the South Napa Earthquake," USGS Menlo Park, CA, September 4, 2014.
- Geologic Hazards Team Seminar Series, NEIC, "Understanding the NGA-West2 Data and GMPEs: Stress drop, magnitude dependence, aftershocks and small shocks," Golden, CO., August 12, 2014.
- NGA-East SSHAC Workshop 2, International House at UC Berkeley, Resource Expert, "Stress Drop and Magnitude," July 15, 2014.
- Southwestern U.S. Ground Motion Characterization Senior Seismic Hazard Analysis Committee Level 3 (SSHAC3) Workshop #1, Oakland, CA, Resource Expert, March 19 – 21, 2013.
- Earthquake Science Center Seminars, USGS Menlo Park, "Understanding ground motion prediction equations using strong ground motion data, and tectonic tremor," February 13, 2013.
- NGA-East SSHAC Workshop 2 Proponent Discussions and Remaining Critical Issues and Data Needs, UC Berkeley, Resource Expert, "Comments on Stress Drop Distributions," October 13, 2011.
- Risk Management Solutions, Brown Bag Guest Speaker, "Apparent stress, stress drops, and variability in Western US and Eastern Honshu, Japan, Earthquakes," October 19, 2011.
- Earthquake Science Center Seminars, USGS Menlo Park, "Apparent stress, stress drops, and variability in Western US and Eastern Honshu, Japan, Earthquakes," June 29, 2011.
- Berkeley Seismological Laboratory Seminar Series, "Radiated Seismic Energy and Stress Drop of Magnitude 2-9 Earthquakes in Tohoku, Japan," April 19, 2011.
- NGA-East, SSHAC Workshop 1 – Critical Issues and Data Needs, UC Berkeley, "Stress Drop and Scaled Energy," November 17, 2010.
- Earthquake Science Center Seminars, USGS Menlo Park, "Scaled Seismic Energy in Japan and the Western US: Empirical Green's Function Analysis using the Seismic Coda," February 24, 2010.

CONFERENCE PRESENTATIONS: ORAL (*indicates invited talk)

- *Baltay, A. S., S. Yabe, S. Ide and G. C. Beroza (2014), Ground Motion Prediction from Tremor, 10th Joint Meeting of UJNR Panel on Earthquake Research, Sendai, Japan, October 14 – 16.
- *Baltay, A. S. (2014) Reducing variability in earthquake stress drops to define secondary trends, Invited Plenary Speaker, 2014 SCEC Annual Meeting, Palm Springs, CA, September 8.
- Baltay, A. S., and T. C. Hanks (2014), Stress Drop Variability and its Relationship to Variability in GMPEs, SSA Annual Meeting 2013, Seism. Res. Lett. 85(2), p. 508, Anchorage, Alaska, 30 April – 2 May.
- Baltay, A. S., and T. C. Hanks (2013), Understanding the Magnitude Dependence of PGA and PGV: A look at differences between mainshocks and aftershocks in the NGA-West2 data and ground motion from small magnitude Anza data, Abstract S52C-01 presented at 2013 Fall Meeting, AGU, San Francisco, Calif., 9 – 13 Dec.
- Baltay, A. S., and T. C. Hanks (2013), Magnitude Dependence of PGA and PGV in NGA-West2 Data, SSA Annual Meeting 2013, Seism. Res. Lett. 84(2), p. 302, Salt Lake City, Utah, 17 – 19 April.
- Baltay, A. S., S. Ide and G. C. Beroza (2012), Radiated Energy of Recent Great Earthquakes, ECGS Source Meeting, Luxembourg, October 2 – 5.
- Baltay, A., T. C. Hanks and G. Beroza (2012), Understanding the NGA-West Ground-Motion Prediction Equations for PGA and PGV, SSA 2012, San Diego, Calif., 17 – 19 April.
- Baltay, A., S. Ide, and G. Beroza (2011), Radiated Energy of Great Earthquakes, SCEC-ERI Joint Workshop, Stanford University, Calif., 10 – 11 Dec.
- Baltay, A., S. Ide, and G. Beroza (2011), Radiated Energy of Great Earthquakes, Abstract S51E-02 presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 5 – 9 Dec.
- Baltay, A., G. A. Prieto, S. Ide, T. Hanks and G. C. Beroza (2010), Another Look at Strong Ground Motion Accelerations and Stress Drop, Abstract S34B-07 presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13 – 17 Dec.
- Baltay, A. S., G. A. Prieto, S. Ide and G. C. Beroza (2010), Energetic and enervated earthquakes: real scatter in apparent stress and implications for ground motion prediction, Earthquake Source Dynamics Workshop 2010, Smolenice Castle, Slovak Republic, June 27 – July 1, 2010.
- Baltay, A., S. Ide, G. Prieto, and G. Beroza (2009), Scaled Seismic Energy in Japan and the Western US, Eos Trans. AGU, 90(52), Fall Meet. Suppl., Abstract S43C-07.
- Baltay, A., G. A. Prieto and G. C. Beroza (2008), Estimation of Scaled Seismic Energy, Apparent Stress and Acceleration, Eos Trans. AGU, 90(52), Fall Meet. Suppl., Abstract S43C-07.
- Baltay, A., G. A. Prieto and G. C. Beroza (2008), Revisiting energy estimates using the seismic coda and empirical Green's functions, 2008 SSA Annual Meeting Abstracts.

CONFERENCE PRESENTATIONS: POSTER

- Baltay, A. S., and T. C. Hanks (2013), Understanding the Magnitude Dependence of PGA and PGV: A look at differences between mainshocks and aftershocks in the NGA-West2 data and ground motion from small magnitude Anza data, SCEC Annual Meeting, Palm Springs, CA, September 8 – 11; Poster no. 213.
- Baltay, A. S., S. Asawachaisujja and G. C. Beroza (2013), Using tremor to determine strong ground motion parameters, SSA Annual Meeting 2013, Seism. Res. Lett. 84(2), p. 346, Salt Lake City, Utah, 17 – 19 April.

- Baltay, A., S. Asawachaisujja and G. Beroza (2012), Using Tremor to Predict Strong Ground Motion, Abstract presented at 2012 Fall Meeting, AGU, San Francisco, Calif, 3 – 7 Dec.
- Baltay, A. S., T. C. Hanks and G. C. Beroza (2012), Understanding the NGA-West ground-motion prediction equations for PGA and PGV, ECGS Source Meeting, Luxembourg, 2 – 5 Oct.
- Baltay, A., G. C. Beroza and T. C. Hanks (2012), Understanding the NGA-West ground-motion prediction equations for PGA and PGV, SCEC Fall Meeting.
- Baltay, A., T. Hanks, G. Prieto, S. Ide and G. C. Beroza (2011), Comparison of RMS-acceleration and Brune stress drops for Crustal Earthquakes In Japan, SSA Annual Meeting Abstracts.
- Baltay, A., M. Nyst, T. Tabucchi, and P. Seneviratna (2010), Style of deformation and earthquake risk assessment: A comparison between California and Mediterranean countries, SCEC Annual Meeting, 1-055.
- Baltay, A. S., G. Prieto, S. Ide, and G. C. Beroza (2010), Energetic and Enervated Earthquakes: Real Scatter in Apparent Stress and Implications for Ground Motion Prediction, 2010 SSA Annual Meeting Abstracts.
- Baltay, A., G. A. Prieto, S. Ide and G. C. Beroza (2009), Scaled Seismic Energy in Japan and the Western US,, Eos Trans. AGU, 90(52), Fall Meet. Suppl., Abstract S43C-07.
- Baltay, A.S., G.A. Prieto, S. Ide and G.C. Beroza (2009), Scaled Seismic Energy in Japan and the US by Empirical Green's Function Analysis, 2009 SCEC Fall Meeting, Abstract 1-086.
- Baltay, A. S., G. A. Prieto, G. C. Beroza (2009) Scaling Behavior of Radiated Energy Using the Seismic Coda. 2009 SSA Annual Meeting Abstracts.
- Baltay, A., G. A. Prieto and G. C. Beroza (2008), Revisiting Energy Estimates Using the Seismic Coda and Empirical Greens Function Corrections, 2008 SCEC Fall Meeting, Abstract 1-057.
- Baltay, A., G. A. Prieto and G. C. Beroza (2007), Revisiting Energy Estimates Using the Seismic Coda, Eos Trans. AGU, 88(52), Fall Meet. Suppl., Abstract S53B-1274.
- Baltay, A., J. Park (2005), Constraints on Source Rupture From the Directivity of P Waves Excited by the Sumatra Andaman Megathrust, Eos Trans. AGU, 86(18), Jt. Assem. Suppl., Abstract U53A-08.

CONFERENCE PRESENTATIONS BY STUDENTS AND COLLABORATORS

- Yabe, S., A. S. Baltay, S. Ide and G. C. Beroza (2013), Seismic Wave Attenuation Estimated from Tectonic Tremor and Radiated Energy in Tremor for Various Subduction Zones, Abstract S51D-07, presented at 2013 Fall Meeting, AGU, San Francisco, Calif., 9 – 13 Dec.
- Ide, S., A. Baltay, S. Tamura and G. C. Beroza (2011), Shallow Dynamic Overshoot and Energetic Deep Rupture in the 2011 Mw 9.0 Tohoku-Oki Earthquake U51B-0032

SYNERGISTIC ACTIVITIES

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| Ongoing | Manuscript reviewer: Geophysical Journal International; Bulletin of the Seismological Society of America; Seismological Research Letters; Journal of Geophysical Research; Geology; Pure and Applied Geophysics; Internal USGS Manuscripts |
| 2014 | Session Chair, UJNR Panel on Earthquake Research 2014, “Episodic Tremor and Slow Slip” |
| 8/2014 | Panel Review Member, USGS Earthquake Effects Grant Proposals |
| 5/2014 | Member, SSA Board of Directors Nominations Committee |
| 2013 | Co-Chair, Earthquake Science Center Seminar Series, USGS Menlo Park |
| 2008 – 2012 | Earthquake Trail Field Guide for 6 th grade field trips |

2008 – 2012	Educational Outreach Programs, School of Earth Sciences
2012	Coordinated and taught seismology class to visiting Singaporean 9 th grade girls
2011	Session Chair, AGU Meeting 2011, “Big Sources”
2010 – 2011	Mentor, Girls Middle School, Great Ecology Experiment
2010	Session Chair, AGU Meeting 2010, “Earthquake Source Studies III”
2009 – 2010	Yale Class of 2005 5 th Reunion Class Gift Fundraising Co-Chair Coordinated effort to raise over \$206,000 in charitable donations.
2008 – 2010	Graduate Student Programming Board, Stanford University Coordinated and planned social and cultural events for students
2008	Community Housing Associate, Rains Houses, Stanford University
2007	Graduate Student Advisory Committee, School of Earth Sciences

STUDENTS SUPERVISED

Sirada Asawachaisujja (Chulalongkorn University, Bangkok, Thailand), Summer 2012
SURGE Undergraduate Summer Intern, Stanford University

Suguru Yabe (University of Tokyo, Japan), February – March 2013
Visiting student scholar to collaborate on ground motion prediction from tremor

MEDIA AND PUBLIC OUTREACH

2014	Various TV and print interviews on the 2014 South Napa Earthquake
2011	TV Interview about Tohoku earthquake research NBC Bay Area

COLLABORATORS

Gregory Beroza (Stanford University), David Boore (USGS Menlo Park), Thomas Hanks (USGS Menlo Park), Satoshi Ide (University of Tokyo), Norm Abrahamson (PG&E/UC Berkeley), Marleen Nyst (Risk Management Solutions), German Prieto (MIT), Justin Rubinstein (USGS Menlo Park), Pasan Seneviratna (RMS), Taronne Tabucci (RMS), David Wald (USGS Golden, CO), Cheslea Williams (RMS), Suguru Yabe (University of Tokyo), Mary Lou Zoback (Stanford University)

PROFESSIONAL AFFILIATIONS

American Geophysical Union, Seismological Society of America, Southern California Earthquake Center

REFERENCES

Thomas C. Hanks USGS Menlo Park 345 Middlefield Road Menlo Park, CA 94025 thanks@usgs.gov Phone: 650.329.5634	Gregory C. Beroza Stanford University 397 Panama Mall Stanford, CA 94305 beroza@stanford.edu Phone: 650.723.4958	Satoshi Ide University of Tokyo 7-3-1, Hongo, Bunkyo 113-0033 Tokyo, Japan ide@eps.s.u-tokyo.ac.jp
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